

Wright State University

**CORE Scholar**

---

[Browse all Theses and Dissertations](#)

[Theses and Dissertations](#)

---

2011

## A Program Evaluation of a Martial Arts Therapy Program for Children

Jennifer Ann Esterman  
*Wright State University*

Follow this and additional works at: [https://corescholar.libraries.wright.edu/etd\\_all](https://corescholar.libraries.wright.edu/etd_all)



Part of the [Psychology Commons](#)

---

### Repository Citation

Esterman, Jennifer Ann, "A Program Evaluation of a Martial Arts Therapy Program for Children" (2011).  
*Browse all Theses and Dissertations*. 1108.  
[https://corescholar.libraries.wright.edu/etd\\_all/1108](https://corescholar.libraries.wright.edu/etd_all/1108)

This Dissertation is brought to you for free and open access by the Theses and Dissertations at CORE Scholar. It has been accepted for inclusion in Browse all Theses and Dissertations by an authorized administrator of CORE Scholar. For more information, please contact [library-corescholar@wright.edu](mailto:library-corescholar@wright.edu).

**A PROGRAM EVALUATION OF A MARTIAL ARTS THERAPY PROGRAM**  
**FOR CHILDREN**

**PROFESSIONAL DISSERTATION**

**SUBMITTED TO THE FACULTY**

**OF**

**THE SCHOOL OF PROFESSIONAL PSYCHOLOGY**  
**WRIGHT STATE UNIVERSITY**

**BY**

**Jennifer Esterman, Psy.M.**

**IN PARTIAL FULFILLMENT OF THE**  
**REQUIREMENTS FOR THE DEGREE**  
**OF**  
**DOCTOR OF PSYCHOLOGY**

**Dayton, Ohio**

**September, 2012**

**COMMITTEE CHAIR: Leon VandeCreek, Ph.D.**

**Committee Member: Cheryl Meyer, Ph.D., J.D.**

**Committee Member: Leanna Manuel, Psy.D.**

**WRIGHT STATE UNIVERSITY**  
**SCHOOL OF PROFESSIONAL PSYCHOLOGY**

JUNE 13, 2011

I HEREBY RECOMMEND THAT THE DISSERTATION PREPARED UNDER MY SUPERVISION BY **JENNIFER ESTERMAN** ENTITLED **A PROGRAM EVALUATION OF A MARTIAL ARTS PROGRAM FOR CHILDREN** BE ACCEPTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PSYCHOLOGY.

---

Leon VandeCreek, Ph.D.  
Dissertation Director

---

Eve M. Wolf, Ph.D.  
Associate Dean for Academic Affairs

### *Abstract*

Treatments for children with externalizing behavior problems vary from medicating the children to implementing various forms of psychotherapy and behavioral interventions such as Behavior Therapy. In recent years, martial arts group therapy has been explored as an ingredient in treatment protocols to modify these externalizing behaviors. A group martial arts therapy program for children was evaluated. Forty-one children began the program and out of which twenty-six children completed. The participants were separated into three groups based on length of time in the program at the outset of this evaluation. The children's parents were surveyed three times throughout a period of 20 sessions. The results showed no significant differences in the children's behaviors which could be due to design and procedural complications, but the possibility also must be considered that this program is not effective in reducing these behaviors. There was shown to be a significant difference in relation to the Total Problem score and time spent in the program, which indicated that over time, the intervention is successful in reducing a combination of problematic behaviors.

## *Table of Contents*

1.	Summary of the Problem	1
2.	Literature Review	5
	Behavioral therapy	5
	Token Economy	6
	Contingency Contracts	7
	Behavioral Child Management	7
	Deceleration Behavioral Therapy	8
	Punishment	9
	Cognitive Behavioral Therapy	11
	Parent-Child Interaction Therapy	12
	The Use of Martial Arts with Externalizing Behaviors	15
3.	Method	27
	Settings	27
	Participants	27
	Procedure	28
	Design	29
	Instrument	
4.	Results	31
5.	Discussion	36
	Limitations of the Study	39
	Implications for Clinical Practice	39
	Appendix A	41
	Table of Subjects by Group for Externalizing Scores	41
	Table of Subjects by Group for Internalizing Scores	44
	Table of Subjects by Group for Total Problem Scores	47
	Appendix B	50
	Table of Means and Standard Deviations for Externalizing Scores	50
	Table of Means and Standard Deviations for Internalizing Scores	51
	Table of Means and Standard Deviations for Total Problem Scores	52
	References	53

# **A Program Evaluation of a Martial Arts Group Therapy Program for Children**

## **Chapter 1**

### **Summary of the Problem**

The symptoms of a child with a mental health disorder can be difficult to reduce. Externalizing symptoms can be physical, such as hitting, kicking, and/or biting, or they can be verbal such as screaming or cursing. Treatments for these behaviors vary from medicating children to implementing various forms of psychotherapy and behavioral interventions such as behavior therapy.

In recent years, martial arts group therapy has been explored as an ingredient in treatment protocols to modify these behaviors. Martial arts programs tend to focus on learning self-discipline and how to focus and control one's own energy. Proponents believe that a martial arts group therapy program can provide children who exhibit excessive externalizing behaviors ways to gain self-discipline and learn how to control their energy and use that energy in useful ways. However, there is still little research on the effectiveness of these programs. A program evaluation was performed on a program that provides this service to children ages 6 to 12.

The program that was evaluated is housed in a private mental health practice. The program is called Kids in Control (KICk). This program provides a mixture of martial arts training, talk therapy, and behavior therapy. The martial arts part of the program is a combination of Aikido and Ninjutsu, two divisions of martial arts that emphasize stealth

in movement, camouflage, and self-defense techniques, and the curriculum is based on the Samurai Bushido Code, which is a warrior code that demands loyalty, devotion, and honor.

The program also blends a form of behavior therapy, known as Token Economy (which will be explained later in the literature review) into the treatment. The children are able to earn one “stripe” each class if they have behaved well at home, school, and in the dojo (the gym where the practice of martial arts is conducted) during the week. The children also are given homework assignments that they must complete by the next class in order to earn their stripe for that class. If the child completes the homework, behaves well in all three settings, and is able to master the skills for the current belt, then the child is able to test for the next belt. Typically, a child must earn an average of 12 stripes, usually 1 stripe for each session, before testing for the next belt. To earn the stripe, a child must bring back the completed homework and have a good behavior report from the child’s parents. If the child’s parents verbally inform the instructors that the child has displayed problem behaviors in school or at home, or does not return the homework, then the child does not receive the stripe for that session.

The program also models behaviors for parents. The parents typically watch their children complete the session in the dojo and are able to watch the techniques used by the instructors. The parents are not only able to see how to correct unwanted behaviors, but they are also able to see how to reward the desired behaviors that their children engage in through positive reinforcement.

The sessions typically begin with “rolling,” which is when the children engage in summersaults, backwards rolls, frontwards rolls, cartwheels, or other types of acrobatic

moves. Then, the children may engage in a fun activity that teaches them how to listen, follow directions, be patient, or another type of positive lesson. The children then may engage in practicing their martial arts moves, or sit in a circle with Dr. Manuel and listen to a social story. The social stories are age appropriate, and they teach the children social responsibility, lessons on sharing/giving, and/or doing the right thing. After the story, the children answer questions that are posed by Dr. Manuel. After the questions are answered, the children then engage in practicing their martial arts moves (if they have not already done so) or they engage in another activity. As stated above, if the children get through the session without incidence, and they have no major problems at home or in the community, then they earn a stripe for that day.

Forty-one children began this study. Out of those children, twenty-six completed data collection. The children were separated into three groups based on length of time in the program at the outset of this evaluation: Those who had been in the group for 1 to 3 sessions, those who had been in the program for 4 to 15 sessions, and those who had been in the program for 16 sessions or more. Regardless of how long the children had been in the program, they were tracked for an additional 20 sessions. The children's parents completed a Child Behavioral Checklist/6-18 three times throughout the 20 sessions, once at the starting point of the evaluation, once at the middle of the evaluation period (10<sup>th</sup> -11<sup>th</sup> sessions), and once at the end of the evaluation (20<sup>th</sup> session).

Results of the evaluation can be used by the program to endorse or modify the curriculum. Other providers may also use this information to consider whether to develop a martial arts component to the treatment of excessive externalizing behaviors.



The following chapter summarizes the relevant literature for incorporating a martial arts curriculum into a mental health treatment protocol for children who exhibit excessive externalizing behaviors. Subsequent chapters describe in more detail the methodology, the statistical analyses that were performed on the data, and the implications of the findings.

## **Chapter 2**

### **Literature Review**

The focus of this evaluation was on children who have externalizing behavior problems. These problems range from physically lashing out (punching, biting, kicking, etc.) to verbally lashing out (yelling, cursing, saying no, etc.). Externalizing behaviors across diagnostic categories are at the focus of this evaluation instead of a specific mental health disorder, such as Oppositional Defiant Disorder, because most of the mental health diagnoses are comorbid with other diagnoses, such as Attention Deficit/Hyperactivity Disorder, Autism, Asperger's, or a form of Bipolar Disorder.

For many parents who have a child diagnosed with a mental health disorder with externalizing behaviors, choosing an appropriate treatment can be a struggle. Many types of therapies and programs claim to produce effective and beneficial results. Several of the most common forms of treatment for externalizing behavior problems are described next, along with data on their effectiveness when such data are available.

#### **Behavior Therapy**

Behavior therapy has been shown to help children with externalizing behaviors. Generally, behavior therapy uses reinforcements, positive or negative, and extinction to attempt to decrease or extinguish problem behaviors. Positive reinforcements are added to increase a certain behavior. An example of a positive reinforcement is parents giving their child a treat after he or she has cleaned a room, making the behavior of cleaning the room more likely to occur in the future (Spiegler & Guevremont, 1998).

Negative reinforcement occurs when something noxious is removed and thereby increases the likelihood of a person's behavior. For example, a person is more likely to take aspirin for a headache if taking the aspirin removes the pain; thereafter, the likelihood of taking aspirin is increased when the person has a headache (Spiegler & Guevremont, 1998). Many different types of behavioral programs have emerged, based on the principals of positive and negative reinforcement. Token economies, contingency contracts, and behavioral child management training have become increasingly popular as strategies to manage children with externalizing behaviors (Shrivers, 1993).

### **Token Economy**

A token economy uses positive and negative reinforcements to try to increase desired behaviors and decrease unwanted behaviors. In this system, the child's parents or guardians choose several main behaviors that they would like to increase and decrease. After the behaviors are identified, the parents or guardians explain to the child that he or she will earn tokens (examples could be stickers, poker chips, or anything that could hold a symbolic value for points) for engaging in desired behaviors, and when enough tokens have been earned, the child can trade in the tokens for a prize. However, if the child engages in the problem behaviors, then tokens are not awarded or are taken away. Normally, the child can select from many prizes that can be earned, varying in the number of tokens that the prizes cost (e.g., 10 tokens for a cookie, 20 for an extra half hour of television at night, or 30 for a new pair of jeans). Unfortunately, one of the major limitations to this type of program is that once the program is stopped, the problem behaviors quickly return, so it is considered a temporary treatment unless naturally

occurring reinforcers are present for the new behaviors (Hay, 2011; Spiegler & Guevremont, 1998).

### **Contingency Contracts**

Contingency contracts are written agreements between the child's parent(s), teacher(s), therapist, or a combination of the three, that clearly specify what behaviors are not acceptable and the consequences to engaging in the behavior(s) and not engaging in the behavior(s). For example, a contingency contract for a child at home could state that the child will not hit his or her siblings or throw toys, and will do homework. For engaging in all the behaviors, the child can choose from among a number of prizes, such as money, books, extra time playing, etc. (Hay, 2011). This is different from a token economy in that the contract is clearly written out and it is signed by everyone that the contract involves. The contract minimizes disagreements regarding the conditions of the plan because it is written out and placed where the child can see it. Again, the treatment is only likely to be a temporary fix because when it is removed, the problem behaviors are likely to come back (Spiegler & Guevremont, 1998).

### **Behavioral Child Management**

Behavioral child management training is for the parent(s) of the child. Such programs teach parents behavioral therapy procedures to manage their child's behaviors. Specifically, it teaches the parents to give clear and direct directions that are age-appropriate, give positive reinforcement for desirable behaviors, and give appropriate negative consequences for a child's undesirable behaviors. However, the major limitation to these programs is that the desired behaviors often do not generalize to other areas of the child's life, such as school (Hay, 2011; Spiegler & Guevremont, 1998).

## **Deceleration Behavior Therapy**

Deceleration Behavior Therapy has also been used to treat children with externalizing behaviors. This type of program has many techniques including differential reinforcement, consequential deceleration therapy, and aversion therapy. These techniques of Deceleration Behavioral Therapy are described below (Shrivers, 1993).

Differential reinforcement has four strategies: differential reinforcement of incompatible behaviors, differential reinforcement of competing behaviors, differential reinforcement of other behaviors, and differential reinforcement of low response rates. Differential reinforcement of incompatible behaviors is reported to be the best strategy in this system of reinforcement (Spiegler & Guevremont, 1998). In this strategy, a parent identifies an undesired behavior, and then a desired behavior that cannot occur at the same time as the undesired behavior. For example, if a child has temper-tantrums, then the parent would reinforce when a child is being quiet, since the two behaviors cannot occur at the same time. However, the problem with this type of strategy is that there may not always be an incompatible behavior available for reinforcement (Shrivers, 1993).

The second type, differential reinforcement of competing behaviors, reinforces a behavior that still competes with the undesired behavior. However, the competing behavior may be something that the child engages in while doing something undesired. For example, if a child normally wanders around the room (undesired behavior) while he or she is supposed to be doing math problems, the child could wander around the room while doing math problems (competing behavior). However, this strategy does not eliminate the problem behavior of wandering around the room instead of learning to attend fully to the task. Instead, this technique is to have the child engage in something

productive while, simultaneously, engaging in the unproductive behavior (Spiegler & Guevremont, 1998).

The third type of strategy, differential reinforcement of other behaviors, involves reinforcing any other type of behavior other than the undesired one. For example, if a child normally throws things at people, such as toys or shoes, then if the child throws the objects but not at people, the parent would praise the child for not throwing objects at people. The point of this strategy is that the child is engaging in a behavior that is less undesirable. However, it does not stop the undesired behavior all together (Spiegler & Guevremont, 1998).

The last strategy, differential reinforcement of low response rates, reinforces the undesirable behavior when the amount of that behavior decreases. An example of this would be if a child hit a sibling 30 times a day. The parents could then say that if the hitting decreased to only 10 times a day they would spend extra time with the child if that is what the child wanted. Then, once the behavior was down to 10 times a day, they could further decrease it to 5, then 0. Theoretically, this strategy eventually would stop the undesired behavior; however, it would take a very long time and the behavior may return when the extra time is no longer provided (Shrivers, 1993).

## **Punishment**

Another technique that is used in behavior therapy involves punishment. Punishment is used when an individual is trying to reduce or remove an undesirable behavior. For example, if a child was constantly hitting smaller children, then every time the child hit a smaller child the parent could take away a toy or make the child sit in the

corner. Those consequences are intended to reduce the child's behavior of hitting smaller children.

Consequential Deceleration Therapy, which is a type of punishment, involves eliminating the reinforcement for the undesired behavior and making the consequence for the undesired behavior unpleasant. There are two procedures that eliminate reinforcement for undesirable behaviors; extinction and time out from positive reinforcement (time out), and three that use consequences for the undesired behavior; response cost, overcorrection, and physical aversion therapy (Spiegler & Guevremont, 1998).

Extinction is the process of eliminating reinforcers. To do this, a parent needs to identify the reinforcer that is supporting the undesired behavior. For example, if a child cries when he or she is put to bed and a parent comes running in to sooth the child, then soothing the child may be the reinforcement. Extinction would occur when the child cried, but the parent did not come in and sooth the child. However, this process may work very slowly, and the behavior may temporarily increase before the behavior decreases, it may not generalize to other areas in the child's life, and the undesired behavior may occur temporarily after it has been eliminated (Spiegler & Guevremont, 1998).

Time away from positive reinforcement (time out) involves temporarily removing a child from reinforcers right after the undesired behavior occurs. To engage in this correctly, a child should be put into a room or another available space away from all reinforcers or engaging stimuli (windows, objects to play with, other individuals, etc.). The child also should be taken out of the situation only when he or she displays

appropriate behavior. In addition, this technique should not be used if it is an alternative to an undesirable situation (e.g., homework, cleaning, etc.) (Spiegler & Guevremont, 1998).

One technique that is a type of punishment that results in unpleasant consequences for undesirable behavior is response cost. Response cost involves removing a valued object when the undesirable behavior occurs. An example of this may be losing an object for a week if it is left lying around the house (promotes the behavior of picking up after oneself) (Spiegler & Guevremont, 1998).

Another technique that uses the concept of punishment is overcorrection. This procedure involves restitution in which the child makes amends for the undesired behavior, and positive practice when the child performs an exaggerated appropriate behavior to make up for the undesired behavior. An example would be having a child apologize for throwing an object at someone and then having the child pick up everything else that is on the floor (Spiegler & Guevremont, 1998).

The last type of punishment involves applying physically aversive consequences. Unlike the two techniques mentioned above, this technique typically changes the client's behaviors quickly. Application of aversive consequences implements stimuli that hurt or produce unpleasant physical sensations. An example of this would be slapping or applying a small electric shock when a child begins to climb on objects. This technique can have negative side effects, such as aggressive, fearful, or anxious behavior, and also has been debated on ethical grounds many times (Spiegler & Guevremont, 1998).

As described above, behavior therapy includes many techniques that can be applied to children who engage in externalizing behaviors. These techniques can be very



useful, especially as short-term solutions. However, many of these techniques do not permanently remove the behavior; it is likely to return once the reinforcements or punishments are discontinued. In addition, some of the techniques may take a long period of time to become effective, and then when discontinued, the problem behaviors may increase again. Some comprehensive programs have been developed that utilize the basic principles of reinforcement and punishment; however, these programs have additional features that make them unique and are discussed below.

### **Cognitive Behavior Therapy**

Cognitive Behavior Theory suggests that an individual's emotions and behaviors are influenced by the child's perception of a situation, not the situation itself. Their thoughts about a circumstance are what compel them to react the way they do. Therefore, the Cognitive Behavior theory suggests that cognitions are central to a person's functioning (Beck, 1995; Clark & Beck, 2010).

Core beliefs are individuals' most central beliefs about themselves, their world, and others. These beliefs begin to form in childhood and become so deeply ingrained that individuals normally do not articulate them and are regarded as absolute truths or "just the way things are." Core beliefs influence the development of a person's attitudes, rules and assumptions (intermediate beliefs). Intermediate beliefs include what people believe they "should" do or be, as well as their values and stereotypes. Intermediate beliefs also form one's outer layer of thinking, or automatic thoughts. Automatic thoughts are consistent cognitions that respond to life situations or stressors. These thoughts are instant, automatic, and situation-specific. Generally, a person's core beliefs inform an intermediate belief, which then creates automatic thoughts. These three levels of thought

processes help to guide the way a person sees and reacts to the world (Beck, 1995). The cognitive model suggests that negative schemas (core beliefs) become activated during stressful events. When a person's negative schemas, beliefs and assumptions become activated, distorted or dysfunctional automatic thoughts and cognitions are produced. It is these dysfunctional thoughts that interact with situational variables to produce and maintain psychological distress (Beck, 1995).

Cognitive behavior therapy has been shown to be effective in reducing disruptive classroom behaviors in children (Ghafoori & Tracz, 2001). For example, Augimeri et al. (2007) examined a 3-month-long program that used Cognitive Behavior Therapy with 32 children under the age of 12 who exhibited externalizing behaviors and had been arrested for fighting, theft, trespassing, assault, public mischief, or vandalism. The children were randomly assigned to a program called SNAP, which is an outreach program for children under the age of 12 that are considered at risk for receiving police contact, or to a control group that received less intensive treatment. Children in the SNAP program were taught a cognitive-behavioral self-control and problem-solving technique aimed to teach them to "stop-now-and-plan" when faced with a challenge. The program also included a parenting group that teaches parents effective child-management strategies, family counseling, academic tutoring for children, and individual "befriending" for children, which helps the children become involved in their communities. All of the five components within the program are based on the "Stop Now and Plan" method. The children were assessed 6 months after the program ended and it was found that 69% of the children that participated in the program did not have another arrest, whereas 43% of the control did not have another arrest. The children in the SNAP program also had a

significant decrease in the levels of delinquency and aggression from pre to post treatment as measured by the Child Behavioral Checklist/6-18. Many other forms of Cognitive Behavior Therapy have been utilized with externalizing behaviors, such as individual one-on-one treatment that examines the child's automatic thoughts, rules and assumptions, and core beliefs. However, for the purpose of this evaluation, interventions that utilize group settings are the main focus.

### **Parent-Child Interaction Therapy**

Parent-Child Interaction therapy (PCIT) also has been shown to be effective with children that display externalizing behaviors. PCIT is an evidence-based treatment for families of young children with disruptive behavior. This type of treatment typically has two phases. The first phase of treatment begins with child directed interaction (CDI). In this phase parents learn to follow their child's lead in play situations and use skills similar to techniques of traditional play therapy to enhance the parent-child relationship. The parent-directed interaction (PDI) phase is the second component to this treatment. In this second phase of treatment, parents learn ways to lead the child's play activity and provide constant consequences for their child's cooperation or disobedience. This type of treatment provides parents with two basic behavioral principles for managing their child's behavior: parents learn to ignore maladaptive child behaviors and to reward adaptive child behaviors with positive attention (Chase, 2008). Solomon et al. (2008) performed a pilot study on the effects of this type of therapy on 19 boys ages 5 to 12 with significant externalizing behavioral problems. After 12 sessions of the parent-child interaction therapy, the parents were asked to rate their child's problem behaviors. As a result of this therapy, the parents did not view their child's behavior to be as problematic

as they did prior to therapy. Specifically, as measured by the Behavioral Assessment System for Children Parent Rater Forms and the Eyberg Child Behavioral Inventory, parents reported a decrease in aggression, an increase in their children's willingness to share, an increase in shifting to new activities without as many problems, and more willingness to try new things. The researchers did not use a control group for comparison purposes.

### **The Use of Martial Arts with Problematic Behaviors**

As noted above, some children do not respond to talk therapy or programs that primarily focus on rewards and punishments. In addition, programs that focus heavily on the application of rewards and punishments sometimes produce only temporary results. In recent years, martial arts group therapy has been introduced as an ingredient in mental health treatment protocols. Proponents contend that martial arts activities are an active, fun, and helpful way for a child to engage in therapy and that the physical and mental skills that children learn should replace externalizing behaviors and generalize to other settings.

Some programs adapt martial arts activities into programs geared toward children with physical disabilities as well as children with mental health diagnoses. In this section, the practices of several forms of martial arts are reviewed and several studies pertaining to the adaptations to working with children with problematic behaviors are discussed.

According to Lewis (1996), over 100 different forms of martial arts are practiced around the world. The five most popular forms are Judo, Aikido, Karate, Kung Fu, and Tae Kwon Do, each of which has unique combat concentrations. Karate, Tae Kwon Do

and Kung Fu focus on kicking and punching whereas Judo and Aikido focus on using an opponents' energy and desire to defeat them. However, all of these forms focus on a defensive stance and attitude, which means they are only to be used in self defense (Lewis, 1996).

The practice of martial arts is known to have many benefits for those who participate. According to Weiser, Kutz, Kutz, and Weiser (1995), the martial arts have many psychotherapeutic benefits as well. These benefits include increased self esteem and self confidence, a better management of aggression, and a decrease in sleep disturbances and depression. Additionally, a goal of martial arts programs is for students to begin to generalize the values that are emphasized in their training, such as respect, humility, responsibility, perseverance and honor (Weiser et al., 1995).

Additionally Binder (2007) conducted a literature review in which he found that numerous studies support claims that the practice of martial arts has positive psychosocial consequences. It was found that the physical exercise that is involved in martial arts can increase self-esteem and self confidence. He also wrote that it was likely that inclusion of the non-physical aspects of the martial arts during training, such as the values that are emphasized, and/or the instructor acting as a positive role model, play a role in promoting long-term changes.

Lantz (2002) explored the effects of martial arts on family development. He studied 9 couples and 23 families, which were selected by the director of the program and asked to volunteer in the study, and asked them to give feedback on 12 basic themes about the usefulness of martial arts in facilitating the process of family development. The families that participated had been studying Karate, Tae Kwon Do, or Aikido for at least

4 months. Two interviews were conducted with each couple and family, one before the study and one after, to obtain data and to identify parallel themes. The 12 themes that Lantz (2002) identified among the couples and families through methods of observation, snowball sampling, and data and methodological triangulation were self-defense, self-confidence, physical vitality, concentration, respect, friendship, moral development, spirit (a person's energy level), training for life, grades in school, respect for life, and the importance of the martial arts instructor. Many of the couples and families indicated that they experienced martial arts as a positive family development experience.

Guthrie (1995) explored the positive effects of martial arts on women's physical and mental health with a feminist martial arts program. This program was unique because it created an environment that empowered women and girls and allowed them to heal from any trauma they may have experienced from patriarchal oppression. The women who participated in the study had already been involved in the martial arts program at this center and ranged in belt colors from white to black (white being the lowest rank and black being the highest). These women were also victims of incest, rape, eating disorders, or drug abuse, or they had grown up in dysfunctional families. Through the practice of martial arts, these women found that they felt more empowered, were able to heal more, though not all the way, from their trauma, and felt more confident because they were able to use martial arts as a form of self defense. It is not clear from the program description how the women were assessed.

Wright, White, and Gaebler-Spira (2004) conducted a case study to observe the application of the Personal and Social Responsibility Model (PSRM) in an adapted martial arts program for children with physical disabilities. The values, class format, and

responsibility levels of PSRM were integrated into the Developmental Arts program that was used for this study. Examples of the value orientation and characteristic of the PSRM include:

1. Treating students as whole people, with emotional, social, and physical as well as intellectual needs and interests.
2. Recognizing students as individuals with a voice, capacity for decision making, as well as unique struggles and strengths.
3. Creating a psychologically and emotionally safe environment for growth and learning.
4. Establishing a personal connection and pedagogical relationship with students.
5. Empowering students and give them as much responsibility as they are able to manage.
6. Implementing these ideas through the medium of fitness, sport, games, and other human movement activities. (Wright et al., p. 72)

The key responsibility levels for PSRM are:

1. Respect the Rights and Feelings of Others: This includes controlling anger and doing no harm, resolving conflicts peacefully, and including everyone in the activity.
2. Effort: This includes trying hard, focusing on improvement, and persisting in difficult tasks.
3. Self-direction: This includes making choices, working independently, as well as setting and working toward goals.

4. Helping Others: This includes putting others' needs before your own, providing leadership, helping and prioritizing group welfare.
5. Outside the Gym: This involves the transfer of the previous levels into other settings. (Wright et al., p. 72)

This study was conducted with 12 children with cerebral palsy, with ages ranging from 4 to 11. The children participated in the adapted martial arts program for 13 weeks. The results gathered from observational notes, observational checklists, and a skill development checklist, indicated that the children experienced an increased sense of ability, and developed positive feelings about the program (the children reportedly experienced feelings of fun, excitement or enjoyment), and more positive social interactions were observed (Wright et. al., 2004).

Law (2004) applied Choice Theory to explain the effectiveness of Tae Kwon Do on children's mental health. The focus of the program was on reducing aggression and anxiety and increasing self-esteem and independence. Law summarized the theoretical benefits of Tai Kwon Do, but he did not report on its specific use in a program, nor were outcome data provided. Choice Theory alleges that all human behavior is purpose-driven, by which Law means that humans behave the way they do to fulfill a purpose or need, such as to fulfill basic needs like hunger. Choice Theory also identifies five basic needs that humans try to fulfill. These five needs are survival, power, belonging, freedom, and fun (Law, 2004).

According to Law (2004), through the art of Tae Kwon Do, the need of survival is fulfilled because the training improves the child's physical strength, endurance, flexibility



and reflexes. With the physical improvements and the specific self-defense training that Tae Kwon Do provides, the child is able to fulfill the survival need (Law, 2004).

Second, with Tae Kwon Do, children are able to fulfill the need of power when they navigate through the belt system (moving from a white belt up to a black belt). To earn each belt the children must master a set of skills before they are able to go on to a higher belt. During this process, the children receive individual and small group teaching of the skills they need with positive reinforcements when they accomplish those new skills. By participating, the children should be able to take control of their level of learning and gain power as well as freedom just by participating in the program (Law, 2004).

The last two needs, belonging and fun, are fulfilled when the child joins a Tae Kwon Do class. According to Law (2004), children can form lasting friendships with individuals in their classes (belonging), which also brings fun to the classes and the children learn a variety of the techniques, such as stretching, sparring, learning new skills, etc.

Lakes and Hoyt (2004) examined the utility of a school-based martial arts training program for promoting self-regulation. To do this, an evaluation of the Leadership Education Through Athletic Development (LEAD) curriculum was conducted to determine whether children that were in kindergarten through the 5<sup>th</sup> grade improved in this area. The LEAD curriculum was prepared through the Moo Gong Ryu martial arts system whose primary goal is self-improvement. Three domains of self-regulation were reviewed: physical, affective, and cognitive. A total of 207 children participated in the study. All of the children came from the same school and participated in the program

two to three times a week for 4 months. These children, compared to other children in the school that did not receive the training, showed greater self-regulation in response to a physical challenge (obstacle course) and when taking a math test. The children also showed significant gains in prosocial behavior. These outcomes were measured by the Response to Challenge Scale, which was filled out by a trained observer, and the Strengths and Difficulties Questionnaire, which was filled out by the teacher that knew the child was participating in the study.

Few studies have addressed the effectiveness of martial arts therapy for children with mental health disorders. In one study, Palermo et al. (2006) examined the effects of participation with martial arts on children that displayed disruptive behaviors. Palermo et al. (2006) followed 16 children for a 10-month period while they participated in a karate program. The children ranged in age from 8 to 10 years of age and met the *DSM-IV* criteria for Oppositional Defiant Disorder. The authors compared these 16 children to 8 children that received no intervention and found that the children who received the karate training showed a significant decrease in the reduction of problem behaviors at home and school and in the dojo. This study also showed that the 16 children showed improvements with self-regulation, and reductions in overactive behaviors, and improved adaptive and organizational behaviors as measured by two scales: The Test of Anxiety and Depression and The Carey Temperament Scale (Palermo et al., 2006). Martial Arts has also been shown to help in the treatment of violent adolescents, such as those who exhibit disruptive classroom behaviors, are prone to gang violence, or are prone to join a gang. Bell's (1987) opinion is that he has done more to be a positive influence in the lives of young black men as a karate instructor than as a psychotherapist, although he

presented no data to support his conclusions. According to Twemlow and Sacco (1998), when martial arts is used in a therapeutic setting with instructors that are trained and supervised properly, it can be a very helpful, ego-building adjunct to psychotherapy. They suggested that five principles are important for a clinical martial arts program to be successful. These five principles are that there needs to be a leader who is clinically trained in mental health who provides oversight to the program, the martial arts program needs to be accessible to the children on a daily basis, the curriculum must address non-violence, the program should have strong links to the child's family and school, and the martial arts instructors need to be trained to fulfill their role. Twemlow and Sacco also suggested that martial arts can help control aggressive behaviors and impulsiveness, and that martial arts can be helpful in assisting verbally limited students, such as those with Autism, in mastering leadership skills and enhancing mind-body coordination (calming oneself or thinking before acting or speaking) which can be helpful for children with ADHD (Twemlow & Sacco, 1998).

Morand (2004) conducted a study where he examined the effectiveness of a martial arts program that met twice a week. Seven areas were examined. The study looked at if the program was effective in increasing the percentage of completed homework, following specific classroom rules, improved academic performance, improve classroom preparation, decrease maladaptive behaviors, such as inappropriate callout, or inappropriately leaving their seat in class. Morand (2004) used the Morand-Klein Behavior Checklist to measure the behavior throughout a period of 12 weeks in children ages 8 to 11 that were diagnosed with Attention Deficit Hyperactivity Disorder. The children were either assigned to a martial arts program, an exercise program, or a

control group that received no intervention at all. Morand (2004) found that the children in the martial arts program showed an improvement in homework completion, academic performance, classroom preparation, and decreasing the number of classroom rules that were broken, and the amount of times the children inappropriately left their seat.

On the other hand, one study found martial arts programs not to be effective for children with mental health problems. Strayhorn and Strayhorn (2009) conducted a study where they examined the effect of martial arts on change in classroom behavior from kindergarten to third grade. A total of 21,260 children from kindergarten classrooms from across the United States were enrolled. The measure of classroom behavior was done through a questionnaire called the Social Rating Scale and was completed by the teachers. The questions could be rated on a 1 (*never*) to 4 (*always*) Likert scale. The authors of this study failed to find that martial arts training changed the participants' behaviors in the classroom setting (Strayhorn & Strayhorn, 2009).

### **Summary and Critique of Programs**

Many programs are available that aim to decrease children's problematic externalizing behaviors. Behavioral therapy, while effective at times, can take a very long time to take effect, and some children may be resistant to participate. In addition, while effective at the time the technique is being used, many of the problem behaviors quickly return after the technique is discontinued. In addition, parent involvement is crucial in these programs. If parents bend the rules or do not implement the program, then the program is not likely to work.

The previous studies of Martial Arts Therapy offer encouragement in that the programs appear to be successful in changing problematic behaviors. However, while

they do offer encouragement, they are lacking some of the criteria to be considered empirically supported. To be considered empirically supported, according to American Psychological Association, Division 12 (1995), patients who participate in studies are to have better results than patients who received no treatment, or they had outcomes that were at least equal to those of other patients who received an alternative treatment that has been shown in other studies to be beneficial. The treatments should also be able to be duplicated so that other therapists can apply the same treatment in roughly the same way with clients who have similar problems.

Treatments are also normally tested using a particular type of scientific study, which is called a randomized controlled trial. Randomized controlled trials are used routinely in medical research to determine which therapies for a given disorder are beneficial. In a randomized controlled trial, patients with the disorder being studied (e.g., clinical depression) are randomly assigned to one of the treatments being tested. The delivery of the various treatment is controlled as much as possible (for example, the treatments are of equal duration, are provided by therapists of equal experience, and so on) in an attempt to assure that the only difference between the experimental groups is the treatment type (APA, 1995).

### **The Program Evaluation**

The program that is the focus of this study provides a mixed martial arts program adapted for children that have behavioral problems. The curriculum is based on the seven virtues derived from the Samurai Bushido Code. This is a samurai warrior code that demands loyalty, devotion, and honor. These virtues are Rectitude (Gi), Courage (Yu), Benevolence (Jin), Respect (Rei), Honesty (Makoto), Honor (Meito), and Loyalty

(Chuugi). These seven virtues are also goals for the children to accomplish, along with a decrease in problem behaviors.

The program also adds features of Ninjutsu. Ninjutsu is a practiced art of the Ninja. In this ancient art, stealth in movement and camouflage are emphasized. Aikido and Ninjutsu are blended together to form the martial arts program.

The program is headed by a Sensei and a licensed psychologist who incorporate the basic learning modalities, such as visual, auditory, and kinesthetic methods. The training that is provided in the therapeutic martial arts classes is mainly about character and personal development. The goal is for children to learn positive attitudes about life, mental alertness, self-control, respect for themselves and others, and self-discipline through discussion and play activities that are blended into the program.

The program also incorporates a limited token economy system. The children that participate in the Integrative Martial Sciences program earn stripes (tokens) on their belts for good behavior. If the child has a behavioral outburst in school, home (as reported by the parents), or in the dojo, then the child does not earn the stripe for the class and is therefore held back a session in earning the next belt. This program exercises no control over a child's outbursts at school or at home, or how parents and teachers respond to the program. The parents report each week on the child's home and school behaviors.

Children are selected for this program by parent inquiry or by the director of this practice if a child exhibits problems in the areas of social skills, focus, concentration, self-esteem, and/or discipline. In some instances, the child and/or parents have been seen in therapy prior to the child being shifted to this martial arts program. In other instances, children join the program by parental request or following an intake interview in which

the director of the program concludes that the child might benefit from the program. However, all sexual perpetrators and severely violent children are excluded. The children must also have some language skills and large motor skills to be eligible for the program. Parents may withdraw their children from the program at any time, or stay as long as they wish. Parents may withdraw their children from the program for any reasons. The most common reasons for discontinuing include the costs to the family, loss of insurance reimbursement, scheduling complications (e.g., other activities the child may participate in such as sports), and successfully completing the program. Children with internalizing and externalizing problem behaviors are in the groups together; however, this evaluation focused only on children who exhibited excessive externalizing behaviors.

The purpose of this program evaluation was to examine the effects of the group martial arts therapy program on externalizing behavior in children ages 6 to 12 as reported by their parents. It was hypothesized that there would be a significant decrease in externalizing behaviors related to the length of time in the program regardless of the assigned group.

## **Chapter Three**

### **Method**

#### **Setting**

The setting of the program evaluation was a private mental health facility called CCA Companies. The therapeutic program is called Kids in Control (KICK) and classes are arranged in three groups: a kids program (ages 6 to 8), a group for preadolescents (ages 9 to 12), and a teen program (ages 13 to 16).

#### **Participants**

The participants in the evaluation were the parents of the children, ages 6 to 12, who participated in the martial arts program at CCA Companies over a period of 20 sessions. Evaluations were completed on children who were already enrolled in the martial arts program at the time this evaluation began as well as those who were added to the program during the period of this evaluation. A total of 41 children were eligible to participate in this project, with 26 children remaining in the program throughout the three points of data collection. Of the 26 that completed the evaluation, 16 were already involved in the program when the evaluation began, and 10 were added during the period of data collection. Some of the children that dropped out of the program did so for insurance purposes (they were only covered for a certain amount of sessions), relocation, or other reasons. The children that dropped out were not interviewed so it is unknown why they dropped out of the program. Also, not all of the children that were in the program qualified for this evaluation. The practice director (a licensed psychologist)



evaluated each child for appropriateness to enter the data collection. To qualify, the child must have displayed one or more externalizing behavior, such as aggression, hyperactivity, or disruptive behavior. If a child displayed both internalizing and externalizing behaviors, the child was included if there were more externalizing behaviors than internalizing behaviors. Some children who exhibited primarily internalizing behaviors were admitted as participants in the martial arts program but were excluded from this evaluation project. Children were not excluded for other reasons such as physical abilities, physical challenges, etc. The final decision about admission to the martial arts program and inclusion in this evaluation project was made by the director of the practice.

The participants ranged in age from 6 to 12. This age range was selected because these children were more likely to participate in the requisite number of sessions and had less interference with outside activities (e.g., sports, music programs) compared to the older age group, and these children fit the age range of the CBCL/6-18. In Group A, the average age was nine, including four females and six males, and all the children were Caucasian. In Group B, the average age was seven, including two females and five males, and were all Caucasian. Group C's average age was eight, and contained one female and eight males, with seven Caucasian participants, one African American participant, and one biracial participant.

## **Procedure**

The participants were separated into three groups at the start of the evaluation period, those who had been in the program for 1 to 3 sessions, those who had been in the program for 4 to 15 sessions, and those who had been in the program for 16 sessions or

more. The children were tracked for 20 sessions regardless of how many sessions had already been completed when this evaluation period began. The same parent (one) was asked to complete the CBCL/6-18 three times throughout the 20 sessions; once at the starting point of the evaluation, once at the middle of the evaluation (10-11 sessions), and once at the end of the evaluation (20<sup>th</sup> session). The parents completed the CBCL/6-18 in the dojo while the children were completing their session for that day.

The child's scores for externalizing behaviors, internalizing behaviors, and total problems were measured throughout the evaluation. The goal was to evaluate a minimum of 10 children in each of the three session groups on each of three occasions.

### **Design**

The design is a two factor, two level mixed-subject design. The number of sessions the children had already completed when they entered this evaluation program is the independent variable and the three scores on the externalizing, internalizing, and total problem scales on the Child Behavioral Checklist/6-18 represent the dependent variables, with each dependent variable being analyzed separately. With this design, children were placed into the three groups based on how many prior sessions had been completed, and clients were added from the beginning of treatment. Each client was assessed at three time points. The primary focus of this evaluation was to determine whether change occurred in CBCL/6-18 scores, and if so, at what point(s) during treatment.

### **Instrument**

The Child Behavioral Checklist (CBCL/6-18) was used in this evaluation as the dependent measure because it has been successfully used by other studies as a valid measure of externalizing behaviors. The CBCL/6-18 scales were based on parents'

ratings of 4,994 clinically referred children, and were normed on 1,753 children ages 6 to 18. The normative sample was representative of the 48 contiguous states for SES, ethnicity, region, and urban-suburban-rural residence.

The CBCL/6-18 obtains reports from parents regarding children's competencies and behavioral/emotional problems. The CBCL/6-18 asks the parent to provide information for 20 aspects of the child's life, including the child's activities, social relations, and school performance. The CBCL/6-18 has 118 questions that describe specific behavioral and emotional problems, plus two open-ended items for reporting additional problems. For each of the three ratings, the parent rated the child for how true each item was in the last 2 weeks, using the following scale: 0 = *not true (as far as you know)*; 1 = *somewhat or sometimes true*; 2 = *very true or often true*.

The CBCL/6-18 scoring profile includes raw scores, *T* scores, and percentiles for three competence scales (Activities, Social, and School). It also provides scores for eight informant syndromes, which are Anxious/Depressed, Withdrawn/Depressed, Somatic Complaints, Social Problems, Thought Problems, Attention Problems, Rule-Breaking Behavior, and Aggressive Behavior. In addition, composite scores for Internalizing behavior, Externalizing behavior, and Total Problems also are provided. Changes over time in scores on the Externalizing scale were the focus of this program evaluation. *T*-Scores of 60 to 63 put the child in the borderline range, or "at-risk" range for having a diagnosis or problem in that area although the problem is not so serious as to require immediate care. *T*-Scores of 64 and above are considered to be in the "clinical" range, which means that it is likely that the child has a significant problem(s) for which immediate care is recommended.

The Internalizing and Externalizing composite scale scores are determined by combining the scores of several scales. The Internalizing scale consists of the Anxious/Depressed, Withdrawn/Depressed, and Somatic Complaints scales. The Externalizing score is scores composite of the Rule-Breaking Behavior and Aggressive Behavior scales. The Total Problems score is determined by specific problem items on the form throughout all of the scales.

## **Chapter Four**

### **Results**

A total of 10 participants completed the data collection process in Group A, 7 participants completed in Group B, and 9 participants completed in Group C. Forty-one total students entered the evaluation process, but 15 dropped out due to various reasons, including insurance issues, conflicting schedules, moving to a different area, etc.

While the focus of this project was on changes in scores on the Externalizing scale of the CBCL/6-18, data for the Internalizing and Total Problems scales are also presented in the following tables because, as will be seen, significant differences were not found for the Externalizing scale scores, but were found for the Total Problems scale.

The three standard scores (obtained at the beginning, middle, and end of the evaluation period) obtained for each child on the Externalizing, Internalizing and Total Problems scales of the CBCL/6-18 are presented in Table 1, 2, and 3 (those who did not complete the data collection process are also included). Tables 4, 5, and 6 present mean scores and standard deviations for the three groups at the three data collection points for the three scales.

In the first analysis, the scores at the first data point of the children that dropped out during data collection were compared to those who stayed in, using a *t*-test. Scores could range from 30 to 100. No significant difference was found.

The major hypothesis for this project was that there would be a significant decrease in the externalizing behaviors displayed based on time in the program regardless

of group. However, the analysis (repeated measures ANOVA) showed that there were no significant differences in the Externalizing scores in regards to group,  $F(2, 77) = 1.49$ , n.s. or time in the program,  $F(2, 77) = 1.47$ , n.s. and for the interaction,  $F(4, 77) = 0.70$ , n.s. A review of scores in Table 1 indicates that half of the participants who entered Group A (between the first and third sessions) and who completed the program through the three data collection points were classified below the at-risk or clinical range. Patterns of the scores suggest that in Group A there was a slight increase in externalizing behavior from the first point of data collection to the second, followed by an overall decrease in externalizing behaviors (Group A:  $M = 57.1, 58.3, 55.6$ ). Of the seven Group B participants who completed three data collection points, six had beginning scores that placed them in either the at-risk or clinical group. Group B showed a slight decline from the first point of data collection to the second, then a slight increase in externalizing behaviors to the third point of data collection, but an overall decrease in behaviors (Group B:  $M = 65.9, 65.0, 65.3$ ). Lastly, among Group C participants, scores for six of 9 fell within the at-risk or clinical range. Overall, Group C showed a slight decline throughout the three points of data collection (Group C:  $M = 65.4, 63.2, 62.7$ ). The mean score for Group A at the end of the data collection is below the at-risk range and are lower than the beginning scores for Groups B and C, which suggests that children with lower scores already may have left the program.

Because no significant differences were found among the groups for scores on the Externalizing scale, similar analyses were completed on Internalizing and Total Problems scales, although it is important to note that participants had been selected for data collection because their externalizing behaviors were judged to be their primary problem

behaviors. The  $t$ -test that compared the first score of those that dropped out of the program to those that completed the data collection process was significant,  $t(16) = 2.24$ ,  $p = .04$ . The children who left the program early had lower Internalizing scores than those who completed the program.

The analysis for Internalizing scores (repeated measures ANOVA) showed that there was no significant difference in the scores of internalizing behaviors in regards to group,  $F(2, 77) = 1.91$ , n.s., or time in the program,  $F(2, 77) = 1.02$ , n.s., and there was no interaction,  $F(4, 77) = 0.66$ , n.s. A review of scores in Table 2 indicates that only 4 of 10 participants that entered Group A (between one and three sessions) were classified within the at-risk or clinical range. Patterns of the scores suggest that in Group A there was again a slight increase in behavior from the first point of data collection to the second, followed by an overall decrease in internalizing behaviors (Group A =  $M = 52.5$ ,  $54.6$ ,  $52.3$ ). Of the 7 Group B participants, 4 of 7 had scores within the at-risk or clinical ranges. Group B scores showed a slight decline from the first point of data collection to the second, then a slight increase in externalizing behaviors to the third point of data collection, but an overall decrease in behaviors (Group B =  $M = 61$ ,  $57.86$ ,  $58.29$ ). Lastly, 5 of 9 Group C participant's scores fell within the at-risk or clinical range. Group C scores showed a slight decline throughout the three points of data collection (Group C =  $M = 63.44$ ,  $62.89$ ,  $60.56$ ). Overall, none of the three groups' scores are in the clinical range; however Group C is in the borderline range. The mean scores for Group A at the end of the data collection are below the at-risk range and are lower than the beginning scores for Groups B and C, which suggests that children with lower scores already may have left the program.

The third set of analyses addressed the Total Problems scores. The *t*-test comparing the first score of those that dropped out of the program compared to those that completed the data collection process showed that there was no significant difference.

The analysis (repeated measures ANOVA) indicated no significant difference by group,  $F(2, 77) = 2.33$ , n.s., or interaction between the two variables,  $F(4, 77) = 0.37$ , n.s., although there was a nearly significant difference in the scores based on time in the program,  $F(2, 77) = 3$ ,  $p = .06$ . The average score across all the groups decreased throughout all the data points ( $M = 64.28, 63.15, 61.69$ ).

A review of scores in Table 3 indicates that 5 of 10 participants that entered Group A (between one and three sessions) were classified in the at-risk or clinical range. Patterns of the scores suggest that in Group A there was again a slight increase in behavior from the first point of data collection to the second, followed by an overall decrease in internalizing behaviors (Group A =  $M = 57.6, 58, 55.9$ ). Of Group B participants' scores, 7 of 7 fell within the at-risk or clinical range. Group B scores showed a slight decline throughout the three points of data collection (Group B =  $M = 68.14, 65.57, 64.29$ ). Lastly, of those in Group C, scores of 7 of 9 participants fell within the at-risk or clinical range. Group C scores also showed a slight decline throughout the three points of data collection (Group C =  $M = 67.11, 65.89, 64.89$ ). Overall, none of the three groups' scores are in the clinical range; however Group B and C are both in the borderline range. The mean scores for Group A at the end of the data collection are below the at-risk range and are lower than the beginning scores for Groups B and C, which again suggests that children with lower scores already may have left the program.



## **Chapter Five**

### **Discussion**

Many programs are available to parents that want to decrease a child's externalizing and internalizing behavior problems. Many of the options discussed in this report may take a long time to take affect and create only a temporary decrease in symptoms. Martial Arts therapy is an active way to engage children that may help to decrease their problem behaviors. The results of this study indicate that the intervention that was evaluated in this project did not produce a significant difference between the three groups in externalizing or internalizing behaviors over time in the program; however, there was a significant decrease in total problem behaviors in regard to the length of time a child was in the program.

The increase in externalizing and internalizing behaviors in Group A from the first data collection point to the second can be explained by a possible extinction burst. Spiegler and Guevremont (1998) identify an extinction burst when the initial problem behaviors decrease after performing an intervention, then the problem behavior increases (which is sometimes to a level worse than before) for a period of time, and then the problem behavior decreases again and "levels out." Since the children in Group A were new to the program, and the results for Groups B and C do not follow the same pattern, the children in Group A may be demonstrating this extinction burst. This may suggest that the treatment team may want to warn parents that this may happen so they persist with the treatment plan and stay with the program.

There may be several possible reasons why no significant difference was found in externalizing or internalizing behaviors over time in this study. Because the study had an “open door” admission policy (participants could join the study at any time), seasonal changes that may have had an effect on the children’s behavior were not accounted for. For example, a child that began the program in the summer compared to the beginning of the school year in fall may not display as much externalizing or internalizing behaviors as a result of engaging in more activities throughout the day instead of being in a structured environment and unable to get rid of excess energy. Future studies may want to account for that variable and have a closed study where all participants start and end at the same time.

It seems paradoxical that the scores for children in Group B and C, who participated the longest, earned somewhat higher scores than did children in Group A. However, when reviewing the results of the *t*-test that compared the children that dropped out of the program to those that continued the intervention, the results showed that the children with the higher scores, meaning the children with the worst behavior problems, discontinued the program. This could mean that the children that truly needed the intervention did not receive the treatment they needed. This also means that, had all the children stayed in the program, the children’s’ scores could have dropped, suggesting the program does significantly lower the scores on the externalizing and internalizing scales.

Another hypothesis for this finding is that children who responded favorably to this intervention had successfully terminated from the program before they could have been included in this study. That is, only those children who had not improved and/or who had the highest levels of externalizing behaviors remained in the program when this

evaluation began. The children in Group A that received high externalizing scores were more likely to continue to Group B, and then Group C, because their behaviors continued to be viewed as problematic by their parents. Therefore, the children in Groups B and C most likely were composed of the children that demonstrated the most problematic behaviors and, from the perspective of the parents, needed more time for the program to take effect. Therefore, adding one or two more data collection points would be beneficial to determine whether this treatment eventually could be effective with these children.

On the other hand, it is noted that several of the children that began the program with high scores on the three scales dropped out of the program early and perhaps before the intervention could take effect. Of the children that dropped out of the program, 13 children had scores in the clinical range for externalizing behaviors, 12 had scores in the clinical range for internalizing behaviors, and 14 had scores in the clinical range for their Total Problems score. If those children had stayed in the program and received proper intervention then there is a possibility that their scores would have decreased, resulting in the scores to be significant over time in the program.

Another reason that this study may not have shown significant results on the externalizing or internalizing scales is due to complications that arose during the data collection. The goal while collecting data was to have the same parent complete all three CBCL/6-18 forms. However, due to military deployments, and multiple siblings in the program, some parents took the forms home, or different parents completed the CBCL/6-18, which could have distorted the results.

Another complication that arose while collecting data was having the CBCL/6-18 completed during the intended time period. It was intended for the CBCL/6-18 to be

completed 10 to 11 sessions after the first collection point, then 10 to 11 session after the second data collection point (so between sessions 21-22). However, due to complications with keeping track of sessions, some CBCL/6-18 forms were completed outside of these ranges. For future studies, it may help to keep track on a computer system, rather than by hand, and also have someone double check the attendance records to make sure the sessions are being tracked properly.

### **Limitations of This Study**

The number of subjects in this study was limited. Several participants dropped out after the first or second data collection points because of loss of insurance coverage, interference from participation in sports, or other reasons. Increasing the number of participants also would have allowed more variables to be analyzed (e.g., differences between race, gender, age, etc.).

Another limitation of this study was not being able to interview the participants that dropped out of the program. It would have been useful to interview those who dropped out of the program, or compare and contrast those that dropped out, to see if there were common characteristics. If there were common characteristics, then the individuals who lead the program would be able to possibly prepare the parents so there would be fewer dropouts. For example, if the parents stated that they were not seeing change fast enough, then the leaders could inform the parents that it may take longer than they anticipate to see change in their child, but it is important to stay with the program.

### **Implications for Clinical Practice**

Although ongoing treatment programs are difficult to evaluate, clinicians should evaluate programs to determine their overall effectiveness. This study produced no

significant results in the effectiveness of treating children with externalizing behavior problems. As noted above, the failure to find a decrease in externalizing behaviors may have been due to design and procedural complications, but the possibility also must be considered that this program is not effective in reducing these behaviors. This intervention also may be more helpful when used in conjunction with other interventions, such as individual therapy, family therapy, and home and school interventions.

## Appendix A

Table A1

*Externalizing Scores of Subjects by Groups*

Group	Subject Number	Score 1	Score 2	Score 3
A	547	72	70	69
A	567	44	41	44
A	512	50	43	43
A	530	69	66	59
A	508	76	73	73
A	509	72	74	72
A	506	48	56	44
A	505	41	41	44
A	507	40	48	40
A	519	62	71	68
*A	520	63	51	
*A	551	75		
*A	501	58	54	
*A	510	63		
*A	555	58	53	
*A	513	73		
B	499	71	66	65

B	545	73	71	72
B	544	62	60	60
B	543	64	61	64
B	485	58	56	58
B	535	64	72	71
B	524	69	69	67
*B	511	51		
*B	538	74	74	
*B	491	70		
*B	482	64		
*B	488	65	68	
*B	492	69		
*B	500	70	71	
*B	479	66	60	
C	45	69	66	60
C	486	49	54	62
C	162	72	74	74
C	463	74	74	75
C	473	53	51	44
C	477	78	72	74
C	472	66	64	58
C	342	70	66	71
C	445	58	48	46
*C	471	64		
*C	369	34		

*C	188	63	
*C	466	70	
*C	155	65	
*C	468	51	40
*C	406	62	
*C	464	60	

---

*Note.* Group A = children who had been in the program for 1-3 sessions when the evaluation began; Group B = children who had been in the program for 4-15 sessions; Group C = children who had been in the program for 16 or more sessions when this evaluation began.

*Note.* \* indicates children who did not complete the data collection



Table A2

*Internalizing Scores of Subjects by Group*

Group	Subject Number	Score 1	Score 2	Score 3
A	547	41	54	54
A	567	33	33	33
A	512	47	40	44
A	530	66	59	48
A	508	78	72	72
A	509	65	72	72
A	506	50	52	52
A	505	43	43	48
A	507	34	55	34
A	519	68	66	66
*A	520	70	57	
*A	551	59		
*A	501	69	65	
*A	510	69		
*A	555	68	52	
*A	513	69		
B	499	66	57	60
B	545	64	66	66
B	544	54	48	52
B	543	67	60	52
B	485	68	58	65

B	535	50	58	52
B	524	58	58	61
*B	511	64		
*B	538	60	61	
*B	491	58		
*B	482	68		
*B	488	48	58	
*B	492	70		
*B	500	72	71	
*B	479	70	70	
C	45	60	61	54
C	486	58	54	50
C	162	70	68	68
C	463	74	78	74
C	473	61	63	57
C	477	67	70	61
C	472	41	48	45
C	342	70	54	68
C	445	70	70	68
*C	471	57		
*C	369	52		
*C	188	65		
*C	466	60		
*C	155	45		
*C	468	61	50	

*C	406	68
*C	464	48

---

*Note.* Group A = children who had been in the program for 1-3 sessions when the evaluation began; Group B = children who had been in the program for 4-15 sessions; Group C = children who had been in the program for 16 or more sessions when this evaluation began.

*Note.* \* indicates children who did not complete the data collection

Table A3

*Total Problem Scores of Subjects by Group*

Group	Subject Number	Score 1	Score 2	Score 3
A	547	61	64	62
A	567	38	32	40
A	512	62	55	56
A	530	70	67	58
A	508	79	74	75
A	509	70	74	70
A	506	49	53	48
A	505	41	38	45
A	507	37	52	34
A	519	69	71	71
*A	520	72	60	
*A	551	65		
*A	501	64	62	
*A	510	65		
*A	555	63	52	
*A	513	73		
B	499	71	62	62
B	545	72	72	72
B	544	65	59	59
B	543	71	64	61

B	485	70	65	63
B	535	63	69	67
B	524	65	68	66
*B	511	50		
*B	538	71	71	
*B	491	67		
*B	482	70		
*B	488	70	71	
*B	492	74		
*B	500	73	73	
*B	479	68	64	
C	45	65	65	58
C	486	54	54	59
C	162	74	75	75
C	463	76	79	78
C	473	57	60	54
C	477	75	72	72
C	472	65	62	56
C	342	71	63	71
C	445	67	63	61
*C	471	71	62	62
*C	369	46		
*C	188	61		
*C	466	69		
*C	155	56		

*C	468	54	47
*C	406	71	
*C	464	58	

---

*Note.* Group A = children who had been in the program for 1-3 sessions when the evaluation began; Group B = children who had been in the program for 4-15 sessions; Group C = children who had been in the program for 16 or more sessions when this evaluation began.

*Note.* \* indicates children who did not complete the data collection

## Appendix B

Table B1

*Means and Standard Deviations of Group Scores by Data Collection Points for Externalizing Scores*

	Data Collection 1	Data Collection 2	Data Collection 3
	<i>M</i> (SD)	<i>M</i> (SD)	<i>M</i> (SD)
Group A	57.4 (14.2)	58.3 (14)	55.6 (13.8)
Group B	65.86 (5.3)	65 (6.1)	65.28 (5.2)
Group C	65.44 (9.3)	63.22 (9.9)	62.67 (11.9)

Table B2

*Means and Standard Deviations of Group Scores by Data Collection Points for Internalizing Scores*

	Data Collection 1	Data Collection 2	Data Collection 3
	<i>M</i> (SD)	<i>M</i> (SD)	<i>M</i> (SD)
Group A	52.5 (13.4)	54.6 (13.8)	52.3 (13.3)
Group B	61 (15.4)	57.89 (14.2)	58.29 (14.6)
Group C	63.44 (13.8)	62.89 (12.4)	60.56 (12.1)



Table B3

*Means and Standard Deviations of Group Scores by Data Collection Points for Total Problem Scores*

	Data Collection 1	Data Collection 2	Data Collection 3
	<i>M</i> (SD)	<i>M</i> (SD)	<i>M</i> (SD)
Group A	57.6 (11.2)	58 (12.4)	55.9 (10.3)
Group B	68.14 (13.4)	65.57 (13.1)	64.29 (12.7)
Group C	67.11 (13.8)	65.89 (13.3)	64.89 (13.1)

## References

- Augimeri, L.K., Farrington, D.P., Koegl, C.J., & Day, D.M. (2007). The SNAP under 12 outreach project: Effects of a community based program for children with conduct problems. *Journal of Child and Family Studies*, 16, 799-807.
- Bell, C. C. (1987). Prevention strategies for dealing with violence among blacks. *Community Mental Health Journal*, 23, 217-227.
- Binder, B. (2007). Psychosocial benefits of the martial arts: Myth or reality? Retrieved from <http://userpages.chorus.net/wrassoc/articles/psychsoc.htm>
- Chase, R., & Eyberg, S. (2008). Clinical presentation and treatment outcome for children with comorbid externalizing and internalizing symptoms. *Anxiety Disorders*, 22, 273-282.
- Guthrie, S. R. (1995). Liberating the amazon: Feminism and the martial arts. *Women and Therapy*, 16, 107-119.
- Ghafoori, B., & Tracz, S.M. (2001). Effectiveness of cognitive behavioral therapy in reducing classroom disruptive behaviors: A meta-analysis. Retrieved from: <http://www.nichcy.org/Research/Summaries/pages/Abstract45.aspx>
- Hay, W.W. (2011). *Current diagnosis & treatment: pediatrics*. New York: McGraw-Hill Medical.
- Jackson, Y., Rump, B.S., Ferguson, K., & Brown, A. (1999). Group play therapy for children exposed to major stressors: Comparison of quantitative and qualitative evaluation methods. *Journal of Child and Adolescent Group Therapy*, 9, 3-16.

- Lakes, K. D., & Hoyt, W.T. (2004). Promoting self-regulation through school-based martial arts training. *Journal of Applied Developmental Psychology*, 25, 283-302.
- Lantz, J. (2002). Family development and the martial arts: A phenomenological study. *Contemporary Family Therapy*, 24, 565-580.
- Law, D. R. (2004). A choice therapy perspective on children's taekwondo. *International Journal of Reality Therapy*, 24, 13-18.
- Lewis, P. (1996). *The martial arts*. London: Prion Books.
- Morand, M.K. (2004). *The effects of mixed martial arts on the behavior of male children with Attention Deficit Hyperactivity Disorder*. (Doctoral dissertation, Hofstra University). Retrieved from [http://www.tsk.com/programs/ADHD\\_FullStudy.pdf](http://www.tsk.com/programs/ADHD_FullStudy.pdf)
- Palermo, M. T., Luigi, M. D., Forno, G. D., Dominici, C., Vicomandi, D., Sambucioni, A., Proietti, L., & Pasqualetti, P. (2006). Externalizing and oppositional behaviors and karate-do: The way of crime prevention. *International Journal of Offender Therapy and Comparative Criminology*, 50, 654-660.
- Shrivers, J.B. (1993). *Adaptation of kendall and Braswell's cognitive-behavioral therapy for children with hyperactivity and developmental disabilities*. Thesis: Ohio State University.
- Solomon, M., Ono, M., Timmer, S., & Goodlin-Jones, B. (2008). The effectiveness of Parent-Child Interaction T for families of children on the autism spectrum. *Journal of Autism and Developmental Disorders*, 38, 1767-1776.
- Spiegler, M.D., & Guevremont, D. C. (1998). *Contemporary behavior therapy*. Pacific Grove: Brooks/Cole Publishing Company.

- Strayhorn, J.M. & Strayhorn, J.C. (2009). Martial arts as a mental health intervention for children? Evidence from the ECLS-K. *Child and Adolescent Psychiatry and Mental Health*, 3, 34-40.
- Twemlow, S. W., & Sacco, F. (1998). The application of traditional martial arts practice and theory to the treatment of violent adolescents. *Adolescence*, 33, 505-518.
- Weiser, M., Kutz, I., Kutz, S.J., & Weiser, D. (1995). Psychotherapeutic aspects of the martial arts. *Journal of Psychotherapy*, 49, 118-127.
- Wright, P. M., White, K., & Gaebler-Spira, D. (2004). Exploring the relevance of the personal and social responsibility model in adapted physical activity: A collective case study. *Journal of Teaching in Psychical Education*, 23, 71-87.